Claims

What is claimed is:

1. A flame detection system for sensing flame in a single or multiple burner system reacting to the Ultra-Violet light emitted from a burner flame, comprising in combination,

a self-checking module functioning to determine the proper operation of the sensing element;

a micro-computer module which interprets the frequency pulses from the UV sensing tube and allows for degradation and changes in sensor sensitivity;

a flame signal generation module which creates and output flame signal proportional to the signal sensed at the sensing tube input and capable of interfacing to either a flame rod or an ultraviolet burner control system independent of their manufacturer.

2. The combination as set forth in claim 1 wherein the memory means includes non-volatile memory means for storing status information on the system, the non-volatile memory means having sufficient capacity to store information on all burners and maintain said storage in the event of power failure upon system shutdown.

3. The combination as set forth in claim 1 wherein the memory means includes a plurality of words of storage for storing information regarding system faults as they are detected for later scanning of the stored fault information to detect patterns therein.

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4. The combination as set forth in claim 1 in which the control system includes a flame watchdog timer triggered by the processor and having an output serving as an enabling signal for fault relay which enables the flame sensing output.

5. The combination as set forth in claim 4 in which a flame present signal generated by the transmitting module when polling the flame sensor is operatively associated with the flame watchdog timer to enable the flame watchdog timer to respond to trigger pulses from the processor only in the presence of the flame present signal.

6. The combination as set forth in claim 5 wherein the flame watchdog timer has a reset input, and means coupling the reset input to the processor for enabling the flame watchdog timer in a normal mode to sense the flame present signal and provide an output signal to the transmitting module

7. The combination as set forth in claim 5 including a further watchdog timer having a trigger input connected to the microcomputer for being serviced periodically within the time constant of the further watchdog timer, an output from the further watchdog timer being connected to a fault relay for control thereof, the output of the watchdog timer serving to energize the fault relay and terminate the flame present signal in the event the further watchdog timer is not triggered by the processor.

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